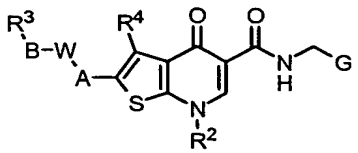
CLAIMS

We claim:

1. A compound of a compound of formula I:



I

its enantiomeric, diastereomeric, or tautomeric isomer thereof, or a pharmaceutically acceptable salt thereof wherein,

G is phenyl substituted with from one (1) to five (5) R^1 substituents;

each R^1 is independently

(a) Cl,

(b) Br,

(c) F,

(d) CN,

(e) C_{1-7}alkyl, or

(f) NO_2;

R^2 is

(a) H,

(b) R^5,

(c) NR^7R^8,

(d) SO_2R^{10}, or

(e) OR^9;

A is C_{1-7}alkyl;

W is a five- (5) or six- (6) membered heterocyclic ring having one (1), two (2) or three (3) heteroatoms selected from the group consisting of O, $S(O)_k$, and N wherein W is optionally substituted with one or more OH, oxo (=O), or C_{1-7}alkyl;

B is

(a) C_{1-7}alkyl optionally substituted by OH or NR^7R^8,

(b) O, or

(c) NR^{11};

R^3 is

(a) phenyl, optionally fused to a benzene or pyridine ring, and optionally substituted by R^{12}, wherein optionally any two adjacent R^{12} substituents taken together constitute a group of the formula $-O(CH_2)O-$, $-(NH)C(=O)(CH_2)_jO-$, or $-(CH_2)_i-$, or

(b) a five- (5) or six- (6) membered heteroaryl bonded via a carbon atom having one (1), two (2), or three (3) heteroatoms selected from the group consisting of O, S, and N-Z, wherein R^3 is optionally fused to a benzene or pyridine ring, and optionally substituted with one or more R^{12}, wherein Z is absence, H, or C_{1-4}alkyl;

R^4 is

(a) H,

(b) halo, or

(c) C_{1-4}alkyl optionally substituted by halo;

R^5 is

(a) $(CH_2)_mOCH_2CH_2OR^{11}$,

(b) het, wherein said het is bound via a carbon atom,

(c) aryl,

(d) C_{1-7}alkyl which may be partially unsaturated and is optionally substituted by one or more R^6 substituents, or

(e) C_{3-8}cycloalkyl which may be partially unsaturated and optionally substituted by one or more R^6 or C_{1-7}alkyl optionally substituted by R^6;

R^6 is

(a) OR^9,

(b) SR^9,

(c) NR^7R^8,

(d) halo,

(e) $CONR^7R^8$,

(f) CO_2R^9,

(g) het,

(h) phenyl, optionally substituted by R^{12},

(i) CN,

(j) oxo,

(k) $SO_2NR^9R^{11}$,

(l) SO_mR^{10}, or

(m) $P(=O)(OR^{11})(R^{11})$;

R^7 and R^8 are independently

(a) H,

(b) aryl,

(c) C_{1-7}alkyl which may be partially unsaturated and is optionally substituted by one or more $NR^{11}R^{11}$, OR^{11}, SR^{11}, SO_mR^{10}, $CONR^{11}R^{11}$, CO_2R^{11}, het, aryl, cyano, or halo,

(d) C_{3-8}cycloalkyl,

(e) $(C=O)R^{10}$, or

(f) R^7 and R^8 together with the nitrogen to which they are attached form a het;

R^9 is

(a) H,

(b) aryl,

(c) het, wherein the het is bound through a carbon atom,

(d) C_{1-7}alkyl which is optionally partially unsaturated and is optionally substituted by one or more aryl, het, OR^{11}, SR^{11}, $NR^{11}R^{11}$, halo, or C_{3-8}cycloalkyl substituents and which C_{3-8}cycloalkyl is optionally substituted by OR^{11}, or

(e) C_{3-8}cycloalkyl which is optionally partially unsaturated and is optionally substituted by one or more halo, OR^{11}, SR^{11}, or $NR^{11}R^{11}$ substituents;

R^{10} is

(a) aryl,

(b) het,

(c) C_{1-7}alkyl which is optionally partially unsaturated and is optionally substituted by one or more aryl, het, OR^{11}, SR^{11}, $NR^{11}R^{11}$, halo, or C_{3-8}cycloalkyl substituents and which C_{3-8}cycloalkyl is optionally substituted by OR^{11}, or

(d) C_{3-8}cycloalkyl which is optionally partially unsaturated and is optionally substituted by one or more halo, OR^{11}, SR^{11}, or $NR^{11}R^{11}$ substituents;

R^{11} is

(a) H, or

(b) C_{1-7}alkyl;

R^{12} is

(a) halo,

(b) OR^{14},

(c) SR^{11},

(d) NR^7R^8,

(e) phenyl, optionally substituted by halo, C_{1-7}alkyl, or C_{1-7}alkoxy,

(f) C_{1-7}alkyl which is optionally partially unsaturated and optionally substituted by R^{13},

(g) cyano,

(h) nitro,

(i) $CONR^7R^8$,

(j) $SO_2NR^7R^8$,

(k) CO_2R^{11}, or

(l) $NHC(=O)R^{11}$;

R^{13} is

(a) phenyl, optionally substituted by halo, C_{1-7}alkyl, or C_{1-7}alkoxy,

(b) OR^{11},

(c) $O(CH_2CH_2O)_nR^{11}$,

(d) NR^7R^8, or

(e) halo;

R^{14} is

(a) H

(b) alkyl, optionally substituted by halo,

(c) phenyl, optionally substituted by halo, C_{1-7}alkyl, or C_{1-7}alkoxy, or

(d) $-(CH_2CH_2O)_nOR^{11}$;

wherein any aryl is optionally substituted with one or more substituents selected from the group consisting of halo, OR^{11}, $NR^{11}R^{11}$, cyano, CO_2R^{11}, or C_{1-7}alkyl in which said C_{1-7}alkyl is optionally substituted by one to three halo, OR^{11}, or $NR^{11}R^{11}$;

wherein any het is optionally substituted with one or more substituents selected from the group consisting of halo, OR^{11}, $NR^{11}R^{11}$, cyano, CO_2R^{11}, oxo (=O), or C_{1-7}alkyl in which said C_{1-7}alkyl is optionally substituted by one to three halo, OR^{11}, or $NR^{11}R^{11}$;

i is 3 or 4;

j is 0 or 1;

k is 0, 1, or 2;

each n is independently 1, 2, 3, 4 or 5; and

each m is independently 1 or 2;

2. A compound of claim 1 wherein R^1 is F, Cl, or cyano.

3. A compound of claim 2 wherein R^1 is Cl.

4. A compound of claim 2 wherein R^1 is F.

5. A compound of claim 1 wherein G is 4-chlorophenyl.

6. A compound of claim 1 wherein G is 4-fluorophenyl.

7. A compound of claim 1 wherein R^2 is H.

8. A compound of claim 1 wherein R^2 is R^5.

9. A compound of claim 1 wherein R^2 is NR^7R^8.

10. A compound of claim 1 wherein R^2 is SO_2R^{10}.

11. A compound of claim 1 wherein R^2 is OR^9.

12. A compound of claim 8 wherein R^2 is C_{1-7}alkyl which may be partially unsaturated and is optionally substituted with one or more R^6 substituents.

13. A compound of claim 12 wherein R^2 is methyl.

14. A compound of claim 12 wherein R^2 is ethyl.

15. A compound of claim 1 wherein A is C_{1-4}alkyl.

16. A compound of claim 1 wherein A is methyl.

17. A compound of claim 1 wherein W is a six- (6) membered heterocyclic ring having one (1), two (2), or three (3) heteroatoms selected from the group consisting of O, $S(O)_k$, or N, wherein het is optionally substituted with C_{1-4} alkyl.

18. A compound of claim 1 wherein W is a five- (5) membered heterocyclic ring having one (1), two (2), or three (3) heteroatoms selected from the group consisting of O, $S(O)_k$, or N, wherein het is optionally substituted with C_{1-4} alkyl.

19. A compound of claim 17 wherein W is morpholine.

20. A compound of claim 18 wherein W is pyrrolidine.

21. A compound of claim 1 wherein B is C_{1-4}alkyl.

22. A compound of claim 1 wherein B is methyl.

23. A compound of claim 1 wherein B is methyl substituted with a hydroxy.

24. A compound of claim 1 wherein R^3 is phenyl.

25. A compound of claim 1 wherein R^3 is naphthyl

26. A compound of claim 1 wherein R^3 is phenyl, fused to a pyridine ring.

27. A compound of claim 1 wherein R^3 is a five- (5) membered heteroaryl bonded via a carbon atom having one (1) or two (2) heteroatoms selected from the group consisting of O, S, and N-Z.

28. A compound of claim 1 wherein R^3 is a five- (5) membered heteroaryl bonded via a carbon atom having one (1) or two (2) heteroatoms selected from the group consisting of O, S, and N-Z, wherein R^3 is fused to a benzene or pyridine ring.

29. A compound of claim 1 wherein R^3 is a six- (6) membered heteroaryl bonded via a carbon atom having one (1) or two (2) nitrogen atoms.

30. A compound of claim 1 wherein R^3 is a six- (6) membered heteroaryl bonded via a carbon atom having one (1) nitrogen atom.

31. A compound of claim 1 wherein R^3 is a six- (6) membered heteroaryl bonded via a carbon atom having one (1) or two (2) nitrogen atoms and is fused to a benzene ring.

32. A compound as in any of claims 24 – 31 wherein R^3 is substituted by R^{12}.

33. A compound of claim 27 wherein R^3 is 2-furyl, thien-2-yl, 1,3-thiazol-2-yl, 1,3-thiazol-5-yl, or 1H-imidazol-2-yl.

34. A compound of claim 29 wherein R^3 is pyrimidin-2-yl, or pyrimidin-5-yl.

35. A compound of claim 29 wherein R^3 is pyrazin-2-yl.

36. A compound of claim 30 wherein R^3 is pyridin-2-yl, or pyridin-3-yl.

37. A compound of claim 1 wherein R^3 is 1,3-benzoxazol-2-yl, or 1,3-benzothiazol-2-yl.

38. A pharmaceutical composition comprising a compound of claim 1 and a pharmaceutically acceptable carrier.

39. A method of treating infections by herpesviruses which comprises administering to a mammal in need thereof a compound of claim 1.

40. The method of claim 39 wherein said herpesviruses is herpes simplex virus types 1, herpes simplex virus types 2, varicella zoster virus, human cytomegalovirus, Epstein-Barr virus, human herpes virus 6, human herpes virus 7 or human herpes virus 8.

41. The method of claim 40 wherein said herpesviruses is human cytomegalovirus.

42. The method of claim 40 wherein said herpesviruses is varicella zoster virus or Epstein-Barr virus.

43. The method of claim 40 wherein said herpesviruses is herpes simplex virus types 1 or herpes simplex virus types 2.

44. The method of claim 39 wherein the compound of claim 1 is administered orally, parenterally or topically.

45. The method of claim 39 wherein the compound of claim 1 is in an amount of from about 0.1 to about 300 mg/kg of body weight.

46. The method of claim 39 wherein the compound of claim 1 is in an amount of from about 1 to about 30 mg/kg of body weight.

47. The method of claim 39 wherein said mammal is a human.

48. The method of claim 39 wherein said mammal is an animal.

49. A method of treating atherosclerosis and restenosis comprising administering to a mammal in need thereof a compound of claim 1.

45. A method for inhibiting a herpesviral DNA polymerase, comprising contacting the polymerase with an effective inhibitory amount of a compound of claim 1.

51. A compound of claim 1, or a pharmaceutically acceptable salt thereof, for use in the manufacture of medicines for the treatment or prevention of a herpesviral infection in a mammal.

52. A compound of claim 1 which is

(1) 2-(((3*S*)-3-benzylmorpholin-4-yl)methyl)-*N*-(4-chlorobenzyl)-7-methyl-4-oxo-4,7-dihydrothieno[2,3-*b*]pyridine-5-carboxamide,

(2) *N*-(4-chlorobenzyl)-2-(((2*R**)-2-((*S**)-hydroxy(phenyl)methyl)-pyrrolidin-1-yl)methyl)-7-methyl-4-oxo-4,7-dihydrothieno[2,3-*b*]pyridine-5-carboxamide

(3) *N*-(4-Chlorobenzyl)-2-(((2*R**)-2-((*R**)-hydroxy(pyridin-2-yl)methyl)-pyrrolidin-1-yl)methyl)-7-methyl-4-oxo-4,7-dihydrothieno[2,3-*b*]pyridine-5-carboxamide,

(4) *N*-(4-Chlorobenzyl)-2-(((2*R**)-2-((*R**)-2-furyl(hydroxy)methyl)-pyrrolidin-1-yl)methyl)-7-methyl-4-oxo-4,7-dihydrothieno[2,3-*b*]pyridine-5-carboxamide,

(5) *N*-(4-chlorobenzyl)-2-(((2*R*)-2-((*R*)-hydroxy(1,3-thiazol-2-yl)methyl)-pyrrolidin-1-yl}methyl)-7-methyl-4-oxo-4,7-dihydrothieno[2,3-*b*]pyridine-5-carboxamide,

(6) *N*-(4-chlorobenzyl)-2-(((2*R*)-2-((*R*)-hydroxy(thien-2-yl)methyl)-pyrrolidin-1-yl}methyl)-7-methyl-4-oxo-4,7-dihydrothieno[2,3-*b*]pyridine-5-carboxamide,

(7) 2-(((2*R*)-2-((*R*)-1,3-benzothiazol-2-yl(hydroxy)methyl)pyrrolidin-1-yl)-methyl)-*N*-(4-chlorobenzyl)-7-methyl-4-oxo-4,7-dihydrothieno[2,3-*b*]pyridine-5-carboxamide,

(8) *N*-(4-chlorobenzyl)-2-(((2*R*)-2-((*R*)-hydroxy(1,3-thiazol-5-yl)methyl)-pyrrolidin-1-yl)methyl)-7-methyl-4-oxo-4,7-dihydrothieno[2,3-*b*]pyridine-5-carboxamide,

(9) *N*-(4-chlorobenzyl)-2-(((2*R*)-2-((*R*)-hydroxy(pyridin-2-yl)methyl)-pyrrolidin-1-yl)methyl)-7-methyl-4-oxo-4,7-dihydrothieno[2,3-*b*]pyridine-5-carboxamide,

(10) *N*-(4-chlorobenzyl)-2-(((2*R*)-2-((*S*)-hydroxy(pyridin-3-yl)methyl)-pyrrolidin-1-yl)methyl)-7-methyl-4-oxo-4,7-dihydrothieno[2,3-*b*]pyridine-5-carboxamide,

(11) *N*-(4-chlorobenzyl)-2-(((2*R*)-2-((*S*)-hydroxy(pyrimidin-5-yl)methyl)-pyrrolidin-1-yl)methyl)-7-methyl-4-oxo-4,7-dihydrothieno[2,3-*b*]pyridine-5-carboxamide,

(12) *N*-(4-chlorobenzyl)-2-(((2*R*)-2-((*R*)-hydroxy(1*H*-imidazol-2-yl)-methyl)pyrrolidin-1-yl)methyl)-7-methyl-4-oxo-4,7-dihydrothieno[2,3-*b*]pyridine-5-carboxamide,

(13) 2-(((2*R*)-2-((*R*)-1,3-benzoxazol-2-yl(hydroxy)methyl)pyrrolidin-1-yl)-methyl)-*N*-(4-chlorobenzyl)-7-methyl-4-oxo-4,7-dihydrothieno[2,3-*b*]pyridine-5-carboxamide,

(14) *N*-(4-chlorobenzyl)-2-(((3*R*)-3-((*R*)-hydroxy(phenyl)methyl)morpholin-4-yl)methyl)-7-methyl-4-oxo-4,7-dihydrothieno[2,3-*b*]pyridine-5-carboxamide,

(15) *N*-(4-chlorobenzyl)-2-(((3*R*)-3-((*S*)-hydroxy(phenyl)methyl)morpholin-4-yl)methyl)-7-methyl-4-oxo-4,7-dihydrothieno[2,3-*b*]pyridine-5-carboxamide,

(16) *N*-(4-chlorobenzyl)-7-ethyl-2-(((2*R**)-2-((*S**)-hydroxy(phenyl)methyl)-pyrrolidin-1-yl)methyl)-4-oxo-4,7-dihydrothieno[2,3-*b*]pyridine-5-carboxamide,

(17) *N*-(4-chlorobenzyl)-7-ethyl-2-(((3*R*)-3-((*S*)-hydroxy(phenyl)methyl)-morpholin-4-yl)methyl)-4-oxo-4,7-dihydrothieno[2,3-*b*]pyridine-5-carboxamide,

(18) *N*-(4-chlorobenzyl)-2-(((2*R**)-2-((*S**)-hydroxy(phenyl)methyl)-pyrrolidin-1-yl)methyl)-4-oxo-7-propyl-4,7-dihydrothieno[2,3-*b*]pyridine-5-carboxamide,

(19) *N*-(4-chlorobenzyl)-2-(((3*R*)-3-((*S*)-hydroxy(phenyl)methyl)morpholin-4-yl)methyl)-4-oxo-7-propyl-4,7-dihydrothieno[2,3-*b*]pyridine-5-carboxamide,

(20) *N*-(4-chlorobenzyl)-2-(((2*R**)-2-((*S**)-hydroxy(phenyl)methyl)-pyrrolidin-1-yl)methyl)-7-(2-methoxyethyl)-4-oxo-4,7-dihydrothieno[2,3-*b*]-pyridine-5-carboxamide,

(21) *N*-(4-chlorobenzyl)-2-(((3*R*)-3-((*S*)-hydroxy(phenyl)methyl)morpholin-4-yl)methyl)-7-(2-methoxyethyl)-4-oxo-4,7-dihydrothieno[2,3-*b*]pyridine-5-carboxamide,

(22) *N*-(4-chlorobenzyl)-2-(((2*R**)-2-((*S**)-hydroxy(phenyl)methyl)-pyrrolidin-1-yl)methyl)-7-(2-morpholin-4-ylethyl)-4-oxo-4,7-dihydrothieno[2,3-*b*]pyridine-5-carboxamide,

(23) *N*-(4-chlorobenzyl)-2-(((3*R*)-3-((*S*)-hydroxy(phenyl)methyl)morpholin-4-yl)methyl)-7-(2-morpholin-4-ylethyl)-4-oxo-4,7-dihydrothieno[2,3-*b*]-pyridine-5-carboxamide,

(24) *N*-(4-chlorobenzyl)-2-(((2*R**)-2-((*S**)-hydroxy(phenyl)methyl)-pyrrolidin-1-yl)methyl)-3,7-dimethyl-4-oxo-4,7-dihydrothieno[2,3-*b*]pyridine-5-carboxamide,

(25) *N*-(4-chlorobenzyl)-2-(((3*R*)-3-((*S*)-hydroxy(phenyl)methyl)morpholin-4-yl)methyl)-3,7-dimethyl-4-oxo-4,7-dihydrothieno[2,3-*b*]pyridine-5-carboxamide, or a pharmaceutically acceptable salt thereof.

53. A compound of claim 1 which is

(1) 2-(((3*S*)-3-benzylmorpholin-4-yl)methyl)-*N*-(4-chlorobenzyl)-7-methyl-4-oxo-4,7-dihydrothieno[2,3-*b*]pyridine-5-carboxamide,

(2) *N*-(4-chlorobenzyl)-2-(((2*R**)-2-((*S**)-hydroxy(phenyl)methyl)-pyrrolidin-1-yl)methyl)-7-methyl-4-oxo-4,7-dihydrothieno[2,3-*b*]pyridine-5-carboxamide

(3) *N*-(4-Chlorobenzyl)-2-(((2*R**)-2-((*R**)-hydroxy(pyridin-2-yl)methyl)-pyrrolidin-1-yl)methyl)-7-methyl-4-oxo-4,7-dihydrothieno[2,3-*b*]pyridine-5-carboxamide,

(4) *N*-(4-chlorobenzyl)-2-(((3*R*)-3-((*R*)-hydroxy(phenyl)methyl)morpholin-4-yl) methyl)-7-methyl-4-oxo-4,7-dihydrothieno[2,3-*b*]pyridine-5-carboxamide,

(5) *N*-(4-chlorobenzyl)-2-(((3*R*)-3-((*S*)-hydroxy(phenyl)methyl)morpholin-4-yl)methyl)-7-methyl-4-oxo-4,7-dihydrothieno[2,3-*b*]pyridine-5-carboxamide, or a pharmaceutically acceptable salt thereof.

54. A compound of claim 1 which is *N*-(4-chlorobenzyl)-2-(((2*R**)-2-((*S**)-hydroxy(phenyl)methyl)pyrrolidin-1-yl)methyl)-7-methyl-4-oxo-4,7-dihydrothieno[2,3-*b*]pyridine-5-carboxamide, or a pharmaceutically acceptable salt thereof.

55. A compound of claim 1 which is *N*-(4-chlorobenzyl)-2-(((3*R*)-3-((*S*)-hydroxy-(phenyl)methyl)morpholin-4-yl)methyl)-7-methyl-4-oxo-4,7-dihydrothieno[2,3-*b*]pyridine-5-carboxamide, or a pharmaceutically acceptable salt thereof.